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Psychosocial work conditions and work stress in an innovating addiction treatment centre. Consequences for the EFQM Excellence Model

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In the Job Demand Control Model (JDCM) and the EFQM Excellence Model, psychosocial work conditions are regarded as critical factors for the functioning of the personnel and the organisation. In order to gain insight into the role of work conditions for the development of work strain and well-being, an empirical study was conducted in an innovating addiction treatment centre in Amsterdam, The Netherlands. The Work Stress Monitor on Mental Health (WSMMH) was used as a measure of the JDCM. A cohort of 209 employees of an addiction treatment centre, in which a far-reaching innovation programme was carried out, participated in this study. With the exception of physical demands, job demands, were high, whereas job controls and the organisational supports were low. Seven out of the 18 work condition scales significantly predicted work strain and well-being. Age and educational level were positive related to well-being. Compared with other health care sectors, work in this addiction treatment centre can be characterised as high-demand low-control and thus as a high strain job. Seven important predictors for this undesirable situation were identified. These predictors can be translated into criteria for the EFQM Excellence Model and can be used to enhance the overall quality of addiction treatment services.

Keywords: quality management; work stress; innovation; work conditions; EFQM Excellence Model; predictors of work stress and well-being

Introduction

Over the last few years, healthcare organisations have improved, and have shown innovation on a broad scale. The changes and reorganisations have had quite an impact on the workplace, the professionals and work pleasure (Schaufeli & Kompier, 2001). Mental healthcare and addiction treatment services have complex tasks and traditionally adapt slower to changes than general health services. However, they have also recently introduced evidence-based treatment programmes, certified processes and performance indicators with the aim of delivering more client-centred, more effective and more efficient treatments (Schippers et al., 2002).

Many mental health care services have also accepted the EFQM Excellence Model as a framework for improvement and innovation (Sluis & Wagner, 2003). Managers and leaders in those services are now more inclined to search for evidence and use proven

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effective approaches to run and innovate their services. They try to follow the principles of evidence-based management similarly to those of medical professionals who apply evidence-based medicine for the treatment of patients (Axelsson, 1998; Stewart, 2002). An important element of evidence-based management is evidence-based human resource management (HRM), which offers a broad knowledge base and has a long tradition concerning the psychological, social, managerial and economical aspects of personnel management (Boxall & Purcell, 2003; Fomburn et al., 1984). The findings of HRM fit smoothly into the EFQM Excellence Model and can be used to shape the personnel criteria of this popular quality management model.

The EFQM Excellence Model dates back to 1980s and is seen in the tradition of total quality management (Malorny, 1999). In the first conceptualisation, three dimensions were identified: People, Processes and Outcome, which marked the central role of human resources. In the EFQM Excellence Model as it is applied now, there are nine criteria, which are all interrelated (European Foundation for Quality Management, 2003). Over the years, theorists and managers have discussed and studied the relations of the nine criteria and have recently introduced three axes within the model: Personnel, Entrepreneur and Resource. The Personnel Axis links the criteria Leadership, People, Processes, People Results and Key Performance as shown in Figure 1 (Hermkens, 2006). The core criteria of the Personnel Axis are People, Processes and People Results.

One of the dominant empirically based models in HRM research is the JDCM. A number of studies identified the relevant aspects of psychosocial conditions of the job situation for work stress and established the general principle of high demands and low control, which in turn cause work stress (Karasek, 1979). The Job Demand Control research combines findings of job controls and enrichment with findings of psychosocial work stress research and has developed a diversity of instruments. It has been shown repeatedly that certain combinations of job demands and job control are predictive of health consequences, such as work strain, which is defined as the long-term effects of work stress, and work well-being, defined as the long-term effects of a favourable job

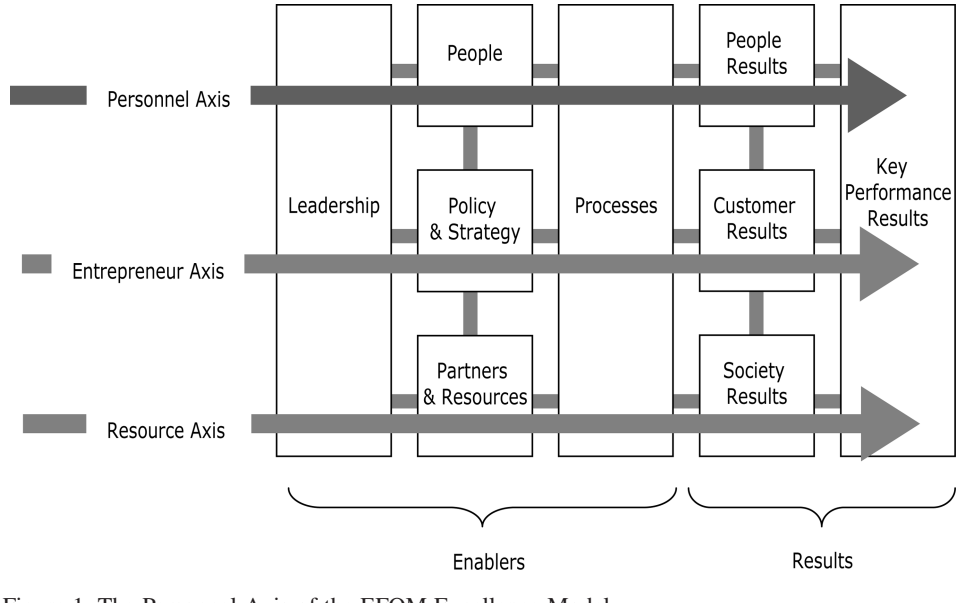

Figure 1. The Personnel Axis of the EFQM Excellence Model.

setting (van Veldhoven, 1996). Demands are, for example, workload, performance demands, task requirements, mental burden, and emotional and social challenges. Controls are factors such as structure of workflow, autonomy, handling work assignments, and learning and feedback. In addition to demands and controls, other organisational aspects such as job resources, social support, career opportunities and job security have been shown to be predictive of work-related stress and well-being, and subsequently these factors were included in the JDCM (Johnson & Hall, 1998). These studies also show that payment structure, age, personality traits and negative attitudes of personnel can act as important confounders in the relationship between demand and control factors with work stress and well-being (Warr, 1990).

The strategic goal of HRM and quality management is to improve performance and the functioning of an organisation, which allows the moulding of the concepts of the JDCM with the Personnel Axis of the EFQM Excellence Model. The criteria People, Processes and People Results can be operationalised in terms of the JDCM and subsequently, these aspects can be studied with instruments that were developed to study the validity of the JDCM. As a consequence this study focused on answering two research questions:

(1) What are the levels of psychosocial work conditions (organisational, demands, controls) and what are the work-related levels of work strain and work-related well-being in a large innovating addiction treatment service?
(2) What is the predictive validity of psychosocial work conditions for work-related levels of work strain and work-related well-being?

Method

Cross-sectional design and sample selection

To measure the level of work conditions and to identify the predictors for work stress, an experimental longitudinal design would have been ideal. However, such a study was not feasible because of practical and financial restrictions. Therefore, a cross-sectional design was applied by conducting a personnel survey.

Setting

It was not possible to select a random sample of addiction treatment services with their employees for this study. The current study is restricted to one addiction treatment centre with different treatment modalities, a diverse staff and a broad quality and innovation programme. The centre provides a wide range of services for alcohol and drug dependent clients in the greater Amsterdam area in The Netherlands. Annually, the centre treats approximately 3500 clients and supports several thousand clients through Internet services. In addition to cure and care, the centre provides a diversity of prevention, probation, dental and lab services. The number of employees is 550: 62% female, average age 44 years (SD=10), more than 75% with higher vocational or academic education. The majority have part-time contracts. The annual budget of the centre is €32 million.

The treatment centre follows a quality management strategy, is ISO certified, and started an innovation programme that introduced Business Process Redesign (BPR) in the late 1990s (Hammer & Champy, 1993). The programme involved fundamentally reviewing and radically redesigning treatment processes to achieve substantial

improvements in performance measures. A steering group, under the lead of a dedicated, determined and transformational-oriented directorate (Schramade & Nabitz, 2005) put the process redesign programme into practice.

Subjects and procedures

Since 2000, the centre has participated in the national personnel improvement project and carried out three surveys among 12 teams (van der Kemp et al., 2004). In 2002, five teams participated ($N = 75$, response rate = 80%); in 2004 three teams ($N = 44$, response rate = 75%) and in 2005 four teams ($N = 90$, response rate = 72%). The cohorts were independent from each other and were pooled for this study ($N = 209$). Previous surveys have shown that the non-responders do not differ on relevant aspects, such as gender, age and education, from the personnel of the total treatment centre.

Data collection was standardised (Bolk & van Veldhoven, 2001). After informative meetings with team leaders and the acceptance of the procedure by the worker's council, questionnaires were distributed, accompanied by a global letter stating the goal of the survey.

Measuring psychosocial work conditions

The questionnaire, Work Stress Monitor Mental Health (WSMMH) was used in this study. This questionnaire is based on the Questionnaire on the Experience and Evaluation of Work (QEEW), which was constructed by applying Rasch analyses, so that scale scores have interval measurement levels, are one dimensional and have high internal consistency (van Veldhoven, Meijman et al., 2002). The scales are related to the JDCM and the dimensions of Well-being and Work strain. Well-being and Work strain are composed of two scales each: Work pleasure and Commitment to the organisation, and Need for recovery and Worrying respectively.

The questionnaire, WSMMH is composed of 22 scales concerning the psychosocial job characteristics of which 18 were identical to the QEEW. Four scales were separately constructed, such as Threatening patient behaviour (Bolk & van Veldhoven, 2001) for mental health services. Furthermore, a series of specific questions were added so that the questionnaire had 249 questions. The 22 scales were grouped after factor analyses in five dimensions: three psychosocial work conditions (Organisational factors, Job demands, Job controls) and two dimensions for the job consequences (Well-being and Work strain). The dimensions were aligned to the Personnel Axis of the EFQM Excellence Model. Figure 2 shows that the EFQM criterion 'People Results' is defined by the dimension Well-being and Work strain. The Enabler criteria 'Processes' are defined by the dimensions, Job Demand and Job Control, and the Enabler criterion 'People' is defined by the dimension Organisation. The Enabler Leadership is not covered and also the Result criterion 'Key Performance Results' is beyond the scope of the dimensions and scales.

The Work Stress Monitor questions have two types of answering categories: *always*, *often*, *sometimes*, *never* (score 1–4) for scales of the psychosocial job characteristics and *yes/no* (1–2) for the scales of Well-being and Work strain. In the initial data processing step, the response scores of the questions are recoded so that the high score represents the unfavourable or negative answer. In the second step, the questions of one scale are summed and transformed to the same range, with a minimum of 0 and a maximum of 100 points. A high scale score is seen as negative and a low scale score as positive. In order to facilitate correct interpretations of the findings, all scales are named in the

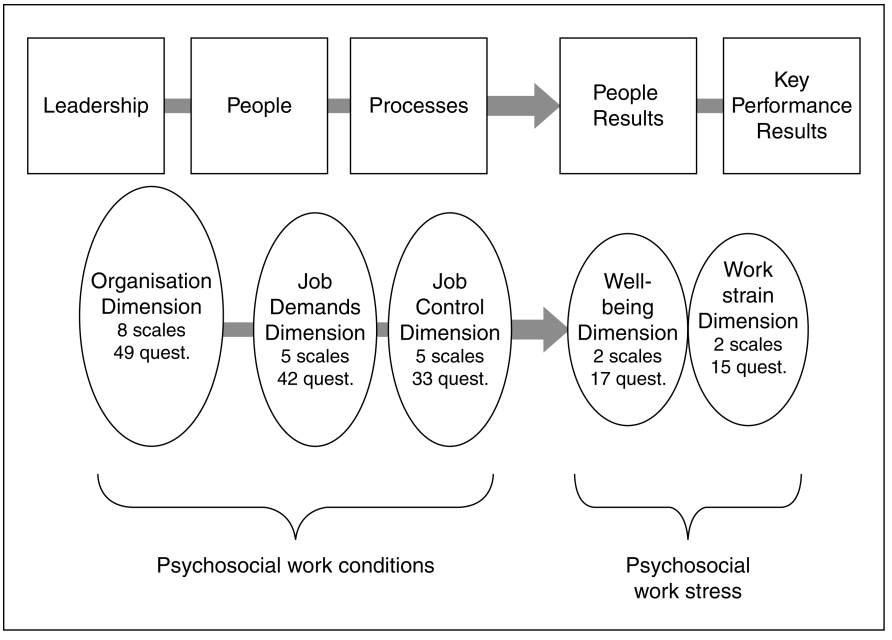

Figure 2. EFQM Personnel Axis and the 22 scales of the Work Stress Monitor Mental Health.

same direction. This means that high scale scores reflect negative psychosocial demands, less skill variety, limited job control, more work strain and less well-being. A low score means more job satisfaction, high engagement, much learning opportunity, good relationships with colleagues, high well-being and less work strain.

Statistical analyses

The internal consistency of the scales for the sample studied has been assessed (Cronbach alpha) and descriptive statistics (minimum, maximum, mean and standard deviation) have been calculated.

Multiple regression analysis is used to identify predictors entering 18 independent variables, which are the scales of the dimensions Organisation, Job Demand and Job Control. The four dependent variables of the dimensions Well-being and Work strain are analysed in separate regression analyses. The normal distribution of the residual dependent and independent variables was screened using scatter plots, which proved to be acceptable. Four variables were analysed concerning a curvilinear effect and one variable showed a positive effect. A total of 84 beta coefficients were calculated for which the significance level of the T-test was set at $\alpha = 0.05$. As confounders that can produce spurious correlations between the dependent and independent variables, three variables – gender, age and educational level – were included in all regression analyses.

Results

The results are presented following the two research questions: the level of psychosocial work conditions including Well-being and Work strain, and the predictors for Well-being and Work strain as perceived by the employees of the treatment centre.

Psychosocial work conditions, well-being and work strain

In Table 1, the 22 scale statistics are presented. All scales have good reliability with Cronbach's alpha ranging between 0.70 and 0.90. The mean scale score varies between 11.9 for High physical demands (no. 13) and 76.9 for Mental burden (no. 10). The three lowest scores that represent the most positive scores are on Physical demands (no. 13), Pleasure in work (no. 19) and Worrying (no. 22). The three highest means scores, which represent the most negative work conditions are Mental burden (no. 10), Limited career possibilities (no. 8) and Threatening patient behaviour (no. 12).

Predictors for well-being and work strain

Tables 2 and 3 present the findings of the four regression analyses predicting for the dimension Well-being; Work pleasure (no. 19) and Commitment (no. 20); and Need for recovery (no. 21) and Worrying (no. 22) for the dimension Work strain.

The regression analyses in Table 2 for the prediction of Work pleasure (no. 19) explains 38% of the variance and identifies four scales as significant predictors: Hinder by organisational changes (no. 2), High work pace and workload (no. 9), Lack of contacts (no. 16) and Insufficient learning possibilities (no. 18). Apart from Lack of contacts

Table 1. Number of questions, ratings, Cronbach's alpha, minimum, maximum, standard deviation and mean of the 22 scales of the Work Stress Monitor Mental Health ($N = 209$).

No.	Name	Quest.	Rating	Cronb.	Min.	Max.	SD	Mean
Organisation scale								
1	Weak mission and vision	5	1-4	0.82	0.0	100.0	17.8	45.2
2	Hindered by organisational changes	6	1-4	0.87	0.0	100.0	18.0	56.6
3	Lack of work meetings	5	1-4	0.87	0.0	100.0	19.7	43.4
4	Unstructured work processes	7	1-4	0.79	0.0	95.2	13.9	42.6
5	Poor relationships with colleagues	9	1-4	0.81	0.0	59.3	12.1	20.2
6	Poor relationships with the boss	9	1-4	0.87	0.0	77.8	15.9	23.9
7	Uncertainty about the future	4	1-4	0.89	0.0	100.0	26.2	20.5
8	Limited career possibilities	4	1-4	0.70	0.0	100.0	18.6	69.5
Job Demand scale								
9	High work pace and workload	11	1-4	0.79	12.1	87.9	15.0	46.1
10	Mental burden	7	1-4	0.82	28.6	100.0	14.9	76.9
11	Emotional burden	7	1-4	0.78	0.0	85.7	14.2	43.0
12	Threatening patient behaviour	10	1-5	0.88	0.0	92.5	18.7	57.1
13	High physical demands	7	1-4	0.82	0.0	85.7	13.7	11.9
Job Control scale								
14	Limited autonomy	11	1-4	0.90	0.0	87.9	17.7	47.7
15	Scarce participation	8	1-4	0.86	0.0	100.0	18.1	50.6
16	Lack of contacts	4	1-4	0.79	0.0	91.7	20.1	40.2
17	Little job variation	6	1-4	0.83	0.0	83.3	17.6	34.3
18	Insufficient learning possibilities	4	1-4	0.77	0.0	91.7	17.8	45.9
Well-being scale								
19	Little work pleasure	9	1-2	0.75	0.0	100.0	18.9	15.0
20	Little commitment to the organisation	8	1-2	0.71	0.0	100.0	23.3	33.4
Work Strain scale								
21	Need for recovery	11	1-2	0.85	0.0	100.0	30.3	41.3
22	Worrying about work	4	1-2	0.75	0.0	100.0	28.1	17.7

Table 2. Predictors for the dimension Well-being.

	Dependent variables									
	No. 19 Little work pleasure					No. 20 Little commitment				
Independent variables	Stand. Beta	*T*-value	Sig.	*P* 1-tailed	Sig.	Stand. Beta	*T*-value	Sig.	*P* 1-tailed	Sig.
Organisation scale										
Weak mission and vision	−0.04	−0.46	0.65	0.32		−0.05	−0.57	0.57	0.28	
Hindered by organisational changes	0.14	1.72	0.09	0.04	*	0.18	2.23	0.03	0.01	*
Lack of work meetings	−0.01	−0.15	0.88	0.44		0.09	1.17	0.25	0.12	
Unstructured work processes	0.11	1.18	0.24	0.12		0.16	1.82	0.07	0.04	*
Poor relationships with colleagues	0.07	0.84	0.40	0.20		−0.02	−0.31	0.76	0.38	
Poor relationships with the boss	0.08	0.90	0.37	0.18		0.10	1.17	0.24	0.12	
Uncertainty about the future	−0.03	−0.38	0.70	0.35		0.00	0.03	0.98	0.49	
Limited career possibilities	0.08	1.05	0.29	0.15		0.11	1.51	0.13	0.07	
Job Demand scale										
High work pace and workload #	0.15	1.79	0.07	0.04	*	−0.05	−0.68	0.50	0.25	
Mental burden	0.01	0.14	0.89	0.45		0.06	0.95	0.35	0.17	
Emotional strain	0.09	1.06	0.29	0.14		−0.04	−0.49	0.62	0.31	
Threatening patient behaviour	−0.07	−0.93	0.35	0.18		−0.02	−0.24	0.81	0.41	
High physical demands	−0.02	−0.33	0.74	0.37		−0.06	−0.95	0.34	0.17	
Job Control scale										
Limited autonomy	−0.06	−0.82	0.41	0.21		0.01	0.17	0.87	0.43	
Scarce participation	0.09	1.08	0.28	0.14		0.02	0.24	0.81	0.41	
Lack of contacts	−0.19	−2.48	0.01	0.01	*	−0.02	−0.32	0.75	0.37	
Little job variation	0.12	1.36	0.18	0.09		0.10	1.12	0.26	0.13	
Insufficient learning possibilities	0.27	2.91	0.00	0.00	**	0.26	2.89	0.00	0.00	**
Control variables										
Age	−0.21	−3.01	0.00	0.00	**	−0.29	−4.27	0.00	0.00	**
Gender	0.02	0.24	0.81	0.40		0.02	0.26	0.80	0.40	
Education level	0.12	1.75	0.08	0.04	*	0.17	2.57	0.01	0.01	*
Model summary										
Explaind variance (*R*-square)	0.38					0.42				
F-test and degrees of freedom	$F\ 21.180 = 5.17$					$F\ 21.179 = 6.21$				
Probablity for alpha	$P < 0.00$					$P < 0.00$				

Notes: # non-linear relation: specific=0.17; non-specific=0.20.
*$P < 0.05$; **$F < 0.01$.

Table 3. Predictors for the dimension Work strain.

	Dependent variable									
	No. 21 Need for recovery					No. 22 Worrying				
Independent variables	Stand. Beta	*T*-value	Sig.	*P* 1-tailed	Sig.	Stand. Beta	*T*-value	Sig.	*P* 1- tailed	Sig.
Organisation scale										
Weak mission and vision	0.04	0.51	0.61	0.31		−0.06	−0.67	0.50	0.25	
Hindered by organisational changes	0.07	0.85	0.40	0.20		−0.01	−0.10	0.92	0.46	
Lack of work meetings	0.07	0.78	0.43	0.22		0.01	0.14	0.89	0.44	
Unstructured work processes	0.02	0.23	0.82	0.41		0.19	1.87	0.06	0.03	*
Poor relationships with colleagues	0.06	0.75	0.45	0.23		0.20	2.27	0.02	0.01	*
Poor relationships with the boss	0.04	0.41	0.69	0.34		0.06	0.57	0.57	0.28	
Uncertainty about the future	0.06	0.85	0.40	0.20		0.23	3.22	0.00	0.00	**
Limited career possibilities	0.00	0.06	0.95	0.47		−0.02	−0.25	0.80	0.40	
Job Demand scale										
High work pace and workload	0.30	3.55	0.00	0.00	**	0.16	1.76	0.08	0.04	*
Mental burden	0.06	0.88	0.38	0.19		0.10	1.30	0.20	0.10	
Emotional strain	0.15	1.62	0.11	0.05		−0.10	−1.02	0.31	0.15	
Threatening patient behaviour	0.00	−0.02	0.99	0.49		−0.08	−0.91	0.36	0.18	
High physical demands	0.07	0.99	0.33	0.16		−0.03	−0.40	0.69	0.35	
Job Control scale										
Limited autonomy	0.00	0.00	1.00	0.50		−0.11	−1.33	0.18	0.09	
Scarce participation	−0.01	−0.14	0.89	0.44		−0.03	−0.35	0.73	0.36	
Lack of contacts	0.05	0.61	0.54	0.27		0.08	0.96	0.34	0.17	
Little job variation	0.15	1.60	0.11	0.06		0.02	0.20	0.84	0.42	
Insufficient learning possibilities	−0.04	−0.42	0.68	0.34		0.11	1.07	0.29	0.14	
Control variables										
Age	−0.02	−0.26	0.80	0.40		−0.05	−0.63	0.53	0.27	
Gender	0.07	1.04	0.30	0.15		0.05	0.69	0.49	0.25	
Education level	−0.02	−0.24	0.81	0.41		0.11	1.42	0.16	0.08	
Model Summary										
Explained variance (*R*-square)	0.33					0.25				
F-test and degrees of freedom	*F* 21.179 = 4.29					*F* 21.180 = 2.85				
Probablity for alpha	P < 0,00					*P* < 0.00				

Note: $^{*}p<0.05$; $^{**}p<0.01$.

(no. 16), all coefficients are positive. Furthermore, the control variables Age and Educational level are significant predictors of Work pleasure.

Commitment to the organisation (no. 20) is predicted by Hindered by organisational changes (no. 2); Unstructured work processes (no. 4) and Insufficient learning possibilities (no. 18). In addition, the control variables Age and Educational level are significant predictors of Commitment (no. 20). A total of 42% of the variance of the commitment to the organisation is explained by the independent variables.

Need for recovery (no. 21) is predicted by High work pace and workload (no. 9) and all predictors together explain 33% of the variance. Worrying about work (no. 22) is predicted by Unstructured work processes (no. 4), Poor relationships with colleagues (no. 5), Uncertainty about the future (no. 7) and High work pace and workload (no. 9). Together the predictors explain 25% of the variance.

Discussion and conclusion

In order to evaluate the meaning of the scores in the current study, scores on the WSMMH are compared with the scores of the reference groups of three healthcare sectors: mental healthcare services, hospitals, home care services (see Table 4). This comparison shows that job demands, High work pace and workload (no. 9), Mental burden (no. 10), Emotional burden (no. 11) and Threatening patient behaviour (no. 12) are perceived by the addiction treatment centre employees as relatively high and job control as relatively low. There is less Autonomy (no. 14) and Scarcer participation (no. 15) in this addiction treatment centre. Compared with the three health sectors, the organisational scale Mission and Vision (no. 1), Hindered by organisational changes (no. 2) and Unstructured work processes (no. 4) are statistically significant negative (Prins, 2006). The comparison shows that in a broader JDCM, which includes aspects of support and resources, the balance for the job demands is disproportionate. It can be concluded that in terms of the JDCM, the jobs in this addiction treatment centre are *high strain jobs*, which are likely to result in high work strain and low levels of well-being, which in turn may lead to frequent sick-leave, burnout, high employee turnover and instability (Karasek, 1979). This situation is reflected in the significant correlations between perceived negative psychosocial work conditions and the scores in terms of well-being and work stress.

One explanation for such high demands is the fact that this study is conducted in an addiction treatment centre that is known for its difficult work setting and difficult patients. This explanation is in line with the hypotheses of work stress, which points out that typical aspects of the work conditions are the reason for work strain (van Vegchel et al., 2005). A similar interpretation was given by Bakker for homecare services in which specific job demands are related to the exhaustion component of burnout (Bakker et al., 2003).

An explanation for such low controls and the lack of the organisational support and resources can be seen in the innovation programme of the treatment centre under study. The process re-engineering programme was initiated to introduce evidence-based treatment and to improve the work processes. The findings of the survey show that there are obstructive organisational changes, scarce participation, limited autonomy and few career possibilities perceived by the employees. At the same time, limited job variation and insufficient learning possibilities are reported. This could mean that the redesign of processes is still ongoing and that the programme has not yet successfully transformed the old treatment and work processes to new well-structured and transparent processes. This raises questions about the re-engineering programmes and the engagement of the

Table 4. Comparison of the 22 scales of the Work Stress Monitor Mental Health of the studied case with three health care sectors.

Instruments		Case	Sectors					
Scales of the Mental Health Monitor		Mean	1. Mean MHCS	Sig.	2. Mean HOSP	Sig.	3. Mean HCS	Sig.
Organisation scale								
1	Weak mission and vision	45.2	42.6	* (−)	41.3	** (−)	41.3	** (−)
2	Hinder by organisational changes	56.6	47.3	** (−)	46.1	** (−)	46.1	** (−)
3	Lack of work meetings	43.4	41.3		40.9		40.9	
4	Unstructured work processes	42.6	36.8	** (−)	38.0	** (−)	36.8	** (−)
5	Poor relationships with colleagues	20.2	20.4		21.0		20.0	
6	Poor relationships with the boss	23.9	21.3	* (−)	21.9		13.5	** (−)
7	Uncertainty about the future	20.5	21.8		21.9		29.5	** (+)
8	Limited career possibilities	69.5	66.8	* (−)	70.9		67.9	
Job Demand scale								
9	High work pace and workload	46.1	43.6	* (−)	42.4	** (−)	35.9	** (−)
10	Mental burden	76.9	72.5	** (−)	76.6		71.4	** (−)
11	Emotional burden	43.0	39.0	** (−)	30.6	** (−)	27.3	** (−)
12	Threatening patient behaviour	57.1	38.9	** (−)	37.4	** (−)	37.4	** (−)
13	High physical demands	11.9	17.8	** (+)	27.0	** (+)	32.2	** (+)
Job Control scale								
14	Limited autonomy	47.7	41.7	** (−)	49.0		37.3	** (−)
15	Scarce participation	50.6	44.4	** (−)	48.2		45.5	** (−)
16	Lack of contacts	40.2	38.9		39.9		41.7	
17	Little job variation	34.3	32.1		38.1	** (+)	41.1	** (+)
18	Insufficient learning possibilities	45.9	45.3		48.9	* (+)	48.7	* (+)
Well-being scale								
19	Little work pleasure	15.0	12.3	* (−)	10.1	** (−)	10.2	** (−)
20	Little commitment to the organisation	33.4	37.2	** (+)	41.3	** (+)	31.8	
Work Strain scale								
21	Need for recovery	41.3	31.7	** (−)	26.7	** (−)	24.9	** (−)
22	Worrying about work	17.7	17.6		14.3		12.8	* (−)

Notes: High scores mean negative work conditions, well-being or work strain. Low scores mean positive work conditions, well-being or work strain. MHCS = Mental Health Care Services; HOSP = Hospitals; HCS = Home Care Services. Unfavourable differences: *(−) = $p<0.05$; **(−) = $p < 0.001$. Favourable differences: *(+) = $p < 0.05$; **(+) = $p < 0.01$.

professionals (Willcocks & Currie, 1996). It also raises some fundamental issues about the applicability of process redesign in mental health services.

An interesting finding is the high commitment of the employees as part of the dimension Well-being. In comparison to other healthcare sectors, the employees of this addiction treatment centre report a strong commitment to the service, although there are high demands, little support and many organisational changes. Previously published studies on addiction treatment centres in Canada, where the intention to continue the job shows a positive relation to attitude, involvement, age, education and work setting (Ogborne

et al., 1998) show similar findings of high commitment. This controversial picture of high demand and high commitment has to be explained with mechanisms, active in the staff of treatment centres, which are not clarified by the JDCM. Some researchers have developed ideas, assumptions and hypotheses for this phenomeon (Bakker et al., 2004; Sagie & Krausz, 2003).

Predictors for well-being and work strain

The findings concerning the predictors are summarised in Figure 3. Well-being has five predictors. The central predictors for well-being are learning possibilities and organisational changes. Furthermore, well-structured work processes and low workload are positively related to Well-being. Work strain has four predictors of which workload and job uncertainty are the strongest. Poor relationships with colleagues and unstructured work processes are related to work strain.

In a multi-level analysis of job conditions and job-related stress, van Veldhoven, de Jonge et al. (2002) concluded that workload predicts Work strain and this is confirmed in the current study. However, their finding that job variation is a predictor of well-being is not confirmed. This study shows that organisational changes, workload, contacts and learning possibilities are additional predictors for well-being.

The regression analyses also show that the age and education level are confounders (congeners) for well-being. Previous studies have shown that older workers report more job satisfaction than their younger colleagues. Warr demonstrated a U-shape curvilinear

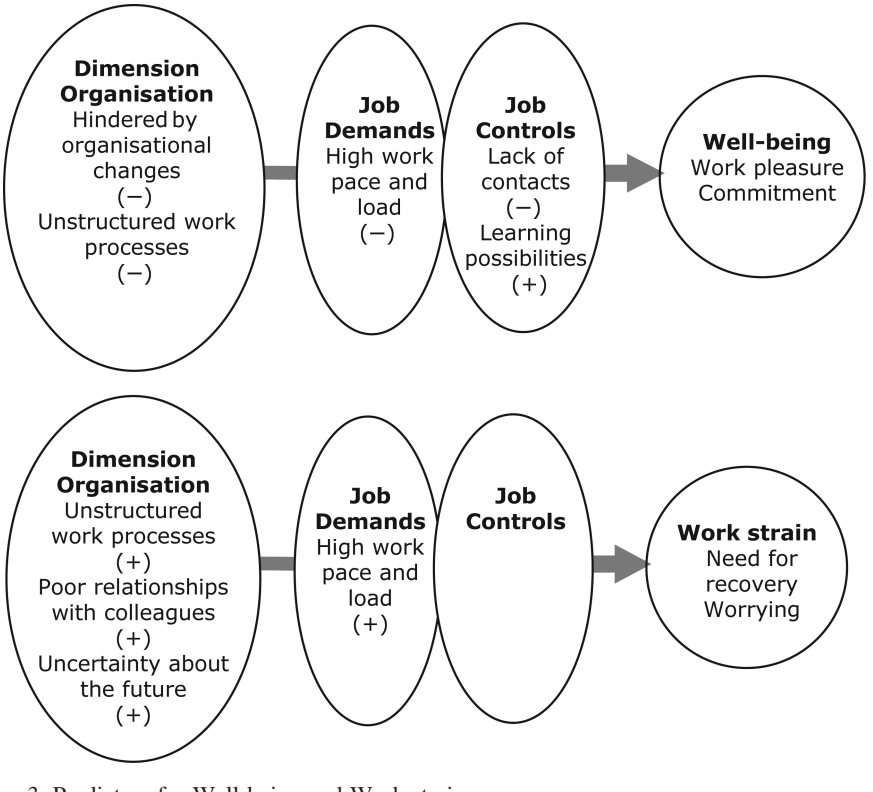

Figure 3. Predictors for Well-being and Work strain.

relation between age and occupational well-being (Warr, 1990). Additional analyses in this study show that both younger (25 year olds) and older (50 year olds) employees report higher work pleasure and that the employees in the age group around 35 years are more negative.

EFQM interpretation

Workload, learning possibilities and contacts as part of the criterion Process are predictors for Well-being and Work strain, which are consequently the relevant measures for People Results of the EFQM Excellence Model. The organisational predictors, organisational hinders, unstructured work processes, relationship with colleagues and uncertainty about the future can be seen as measures for the Personnel criterion. The identified predictors for the criterion Personal Results show that there is an empirical founded relation between Personnel, Processes and the results, which can be read as a confirmation of the assumed Personnel Axis of the EFQM Excellence Model. The link to the criteria Key Performance Results and Leadership as part of the full Personnel Axis could not, however, be analysed.

When the findings are reviewed and discussed in the broader context of the EFQM Excellence Model, the link to other criteria can be made. Positive findings concerning employee commitment are important in relation to patient satisfaction. The correlation between personnel and patient satisfaction has been studied frequently and shows high correlations (Atkins et al., 1996; Hanneman, 2006; van der Kemp et al., 2004). Positive and motivated personnel treating patients is related to higher patient satisfaction, which is one of the links in the EFQM Excellence Model. This relation to well-being and patient satisfaction was not investigated in this study because patient satisfaction data concerning the same timeframe and the same treatment units were not available. However, a high correlation can be expected.

Methodological limitations

The study has some methodological limitations. The cross-sectional design does not allow causal interpretations of the findings. The measured psychosocial work conditions are not necessarily preceding the measured well-being and perceived work stress. Further studies are needed with a longitudinal or experimental design to prove the causal relationship and to answer the research questions more fundamentally. Initial results of longitudinal studies have been published but are not fully consistent with the JDCM (Lange et al., 2003).

Alongside the questions of the study design, critical remarks have to be made concerning the WSMMH as a self-report instrument. Self-report instruments are sensitive to response biases, which may have played a role in the scales for Well-being and Work strain. The validity of the findings of the high work pleasure of the treatment centre employees needs further consideration. For example, it has been shown that psychological aspects in a hospital setting have a strong influence on work-related attitudes (Sagie & Krausz, 2003).

The relatively small sample ($N = 209$) does not allow complex statistical analyses to test multi-level and the effects of interaction or study sub groups (van Vegchel et al., 2005). The available data of mental health care services of more than 10,000 participants invites us to instigate data analyses to study the hypothesis raised in this study (Prins, 2006).

Finally, the convenience sample that was chosen limits generalisation. The addiction treatment centre was engaged in a broad radical innovation programme that had a strong

impact on the working conditions. The findings can be seen as highly relevant for services, which are also in reorganisation or showing innovation, but it is difficult to broaden the findings to all addiction treatment or mental health services in general.

Suggestions for evidence-based management

Although the findings cannot be applied to all services, some meaningful suggestions can be given to this specific addiction treatment centre. As demonstrated, the job demands in the addiction treatment centre are high. High job demands need a variety of job controls in order to prevent work stress. Attention should therefore be focused on developing a good counterbalance for the demands.

This study shows that the radical innovation programme in all probability affects Well-being and Work strain and that there is a group of employees who are under high work pressure. Structuring the workflow together with the professionals is one suggestion but this will probably be unsatisfactory. In order to reduce the need for recovery, shorter shifts, free days, breaks during work and shorter days could be introduced. It has to be noted that well-being is related to age and that more consideration should be paid to the 'The middle age' group.

Employee commitment to the organisation is high, which is a positive finding and can be seen as a signal to continue and finish the innovation programme. However, more thoughtfulness has to be paid to the needs of the employees in order to sustain their commitment. The process redesign programme must have advantages for the professionals because they are at the centre of these change processes. A new phase of redesigning could be rolled out with the goal of adapting workflow and daily routines to the needs and wishes of the professionals.

The findings of this study could prove valuable to the management of the treatment centre for EFQM self-assessments. The scales of Well-being and Work strain can be used to measure the criterion People Results. The scales of the of the WSMMH dimensions for Job Demands, Job Control and Organisation can be used to measure the Enablers of the EFQM Excellence Model. These measures are needed for benchmarking and for monitoring changes over time, which helps to make changes transparent and demonstrate quality improvements. Systematic measures, sound analyses of the data and stimulating feedback of the findings support the promising approach of evidence-based management and enhances the quality of human resource and quality management of addiction treatment and mental health care services.

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